IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121.

1. (original) A method for generating a three-dimensional dataset, the method comprising the acts of:

acquiring a plurality of projection images from different locations on an arbitrary imaging trajectory; and

reconstructing the plurality of projection images to form a three-dimensional dataset.

2. (original) The method as recited in claim 1, comprising the act of:

visualizing a selected volume of the three-dimensional dataset.

3. (original) The method as recited in claim 1, comprising the act of:

processing at least one of the plurality of projection images, the three dimensional dataset, and a volume subset of the three-dimensional dataset using a CAD algorithm.

4. (original) The method as recited in claim 1, comprising the act of:

processing at least one of the plurality of projection images, the three dimensional dataset, and a volume subset of the three-dimensional dataset prior to processing by a CAD algorithm or to visualization.

5. (original) The method as recited in claim 1, wherein acquiring the plurality of projection images comprises:

emitting X-rays from one or more X-ray sources at a plurality of locations on the arbitrary imaging trajectory; and

generating at least one projection image corresponding to each location from which X-rays are emitted.

6. (original) The method as recited in claim 1, wherein acquiring the plurality of projection images comprises:

moving an X-ray source along the arbitrary imaging trajectory;

emitting X-rays from the X-ray source at a plurality of locations on the arbitrary imaging trajectory; and

generating at least one projection image corresponding to each location from which X-rays are emitted.

7. (original) The method as recited in claim 1, wherein acquiring the plurality of projection images comprises:

emitting X-rays from a plurality of X-ray sources, wherein each X-ray source may be positioned at one or more locations on the arbitrary imaging trajectory and wherein only one X-ray source is active at a time; and

generating at least one projection image corresponding to each location from which X-rays are emitted.

8. (original) The method as recited in claim 7, wherein each X-ray source is stationary.

9. (original) The method as recited in claim 1, wherein the three-dimensional dataset comprises mammography image data.

10. (previously presented) A tangible, machine readable media, comprising:

code adapted to control acquisition of a plurality of projection images from different locations on an arbitrary imaging trajectory; and

code adapted to reconstruct the plurality of projection images to form a three-dimensional dataset.

11. (original) The tangible, machine readable media, as recited in claim 10, comprising:

code adapted to visualize a selected volume of the three-dimensional dataset.

12. (original) The tangible, machine readable media, as recited in claim 10, comprising:

code adapted to process at least one of the plurality of projection images, the three dimensional dataset, and a volume subset of the three-dimensional dataset using a CAD algorithm.

13. (original) The tangible, machine readable media, as recited in claim 10, comprising:

code adapted to process at least one of the plurality of projection images, the three dimensional dataset, and a volume subset of the three-dimensional dataset prior to processing by a CAD algorithm or to visualization.

14. (previously presented) The tangible, machine readable media, as recited in claim 10, comprising code adapted to control emission of X-rays from one or more X-ray sources at a plurality of locations on the arbitrary imaging trajectory.

15. (original) The tangible, machine readable media, as recited in claim 10, wherein the code adapted to acquire the plurality of projection images moves an X-ray source along the arbitrary imaging trajectory, emits X-rays from the X-ray source at a plurality of locations on the arbitrary imaging trajectory, and generates at least one projection image corresponding to each location from which X-rays are emitted.

16. (original) The tangible, machine readable media, as recited in claim 10, wherein the code adapted to acquire the plurality of projection images emits X-rays from a plurality of X-ray sources, wherein each X-ray source may be positioned at one or more locations on the arbitrary imaging trajectory and wherein only one X-ray source is active at a time, and generates at least one projection image corresponding to each location from which X-rays are emitted.

17. (original) An imaging system, comprising:

means for acquiring a plurality of projection images from different locations on an arbitrary imaging trajectory; and

means for reconstructing the plurality of projection images to form a three-dimensional dataset.

18. (original) An imaging system, comprising:

an X-ray source configured to move along an arbitrary imaging trajectory;

a positioner configured to move at least the X-ray source;

a system controller configured to operate the X-ray source;

a detector configured to detect X-rays emitted by the X-ray source at different locations on the arbitrary imaging trajectory and to generate signals in response to the detected X-rays; and

a detector interface configured to acquire the signals from the detector.

19. (original) The imaging system, as recited in claim 18, comprising:

a reconstruction workstation configured to reconstruct image data from the signals acquired by the detector interface.

20. (original) The imaging system, as recited in claim 18, comprising:

a review workstation configured to display images reconstructed from the signals acquired by the detector interface.

21. (original) The imaging system, as recited in claim 18, comprising:

a picture archiving system configured to store data from at least one of the system controller, a reconstruction workstation, and a review workstation.

22. (original) An imaging system, comprising:

a plurality of X-ray sources, wherein each X-ray source is located at different location on an arbitrary imaging trajectory and wherein each X-ray source is individually activated;

a system controller configured to operate the plurality of X-ray sources;

a detector configured to detect X-rays emitted by each respective X-ray source and to generate signals in response to the detected X-rays; and

a detector interface configured to acquire the signals from the detector.

23. (original) The imaging system, as recited in claim 22, comprising:

a reconstruction workstation configured to reconstruct image data from the signals acquired by the detector interface.

24. (original) The imaging system, as recited in claim 22, comprising:

a review workstation configured to display images reconstructed from the signals acquired by the detector interface.

25. (original) The imaging system, as recited in claim 22, comprising:

a picture archiving system configured to store data from at least one of the system controller, a reconstruction workstation, and a review workstation.